AMENDMENT TO THE CLAIMS.

1. (Currently Amended) A radio and light based 3-D positioning system comprising:

a stationary self-positioning radio (pseudolite) transceiver configured to receive a first plurality of external radio signals, configured to determine its position coordinates based on said first plurality of received external radio signals, configured to broadcast at least one internal radio signal;

a stationary laser transmitter positioned in a location with known coordinates; said stationary laser transmitter configured to broadcast at least one laser beam;

and

at least one mobile integrated radio receiver (pseudolite)/laser detector (RR_LD) configured to receive a second plurality of external radio signals, configured to receive at least one said internal radio signal broadcasted by said stationary self-positioning radio transceiver; configured to detect at least one said laser beam generated by said stationary laser transmitter; and configured to determine its 3-D position coordinates based on a set of data selected from the group consisting of: {said second plurality of received external radio signals; said at least one received internal radio signal; and said at least one detected laser beam}.

2. (Currently Amended) The system of claim 1, wherein said stationary self-positioning radio transceiver further comprises:

a radio (pseudolite) transceiver configured to receive said first plurality of

external radio signals broadcasted by at least one radio source selected from the group consisting of: {GPS; GLONASS; combined GPS/GLONASS; GALILEO; Global Navigational Satellite System (GNSS); and a pseudolite transmitter}.

3. (Currently Amended) The system of claim 1, wherein said stationary self-positioning radio transceiver further comprises:

a differential radio (pseudolite) transceiver configured to receive said first plurality of external radio signals broadcasted by said at least one radio source selected from the group consisting of: {GPS; GLONASS; combined GPS/GLONASS; GALILEO; Global Navigational Satellite System (GNSS); and a pseudolite transmitter}; and configured to receive a set of differential corrections data broadcasted by at least one source selected from the group consisting of: {a Base Station, an RTK Base Station; a Virtual Base Station (VBS); and a pseudolite transmitter}; wherein said differential radio (pseudolite) transceiver is configured to utilize said first plurality of external radio signals and said set of differential corrections data to obtain precise coordinate measurements of said differential radio (pseudolite) transceiver.

4. (Currently Amended) The system of claim 3 further comprising:

a first wireless communication link configured to connect said differential radio (pseudolite) transceiver to said source of differential correction data; and wherein said first wireless communication link is selected from the group consisting of: {a cellular link; a radio; a private radio band; a SiteNet 900 private radio network; a wireless Internet; and a satellite wireless communication link}.

5. (Original) The system of claim 1, wherein said stationary laser transmitter positioned in said location with known coordinates laser transmitter further comprises:

a plane laser transmitter configured to generate a reference laser beam providing a high accuracy vertical coordinate.

6. (Original) The system of claim 1, wherein said stationary laser transmitter positioned in said location with known coordinates laser transmitter further comprises:

a fan laser transmitter configured to generate at least one rotating fan-shaped laser beam.

7. (Currently Amended) The system of claim 1, wherein said at least one mobile integrated radio (pseudolite) receiver /laser detector (RR_LD) further comprises:

a radio (pseudolite) positioning system receiver configured to receive said second plurality of external radio signals broadcasted by at least one radio source selected from the group consisting of: {GPS; GLONASS; combined GPS/GLONASS; GALILEO; Global Navigational Satellite System (GNSS); and a pseudolite transmitter};

and

a laser detector configured to detect at least one said laser beam generated by said stationary laser transmitter positioned in said location with known coordinates;

wherein said integrated radio (pseudolite) receiver/laser detector (RR_LD) is configured to determine its 3-D position coordinates at a first level of accuracy

based on said second plurality of received external radio signals;

wherein said integrated radio (pseudolite) receiver/laser detector (RR_LD) is configured to determine its elevation at a second level of accuracy based on said at least one detected laser beam;

and wherein a set of measurements determined at said second level of accuracy is more accurate than said set of measurements determined at said first level of accuracy.

8. (Currently Amended) The system of claim 1 further comprising:

a second wireless link configured to connect said mobile integrated radio receiver/laser detector (RR_LD with said stationary self-positioning radio (pseudolite) transceiver;

and wherein said second wireless communication link is selected from the group consisting of:{a cellular link; a radio; a private radio band; a SiteNet 900 private radio network; a wireless Internet; and a satellite wireless communication link}.

9. (Currently Amended) The system of claim 8, wherein said at least one mobile integrated radio receiver/laser detector (RR_LD) further comprises:

a first radio (pseudolite) positioning system receiver configured to receive said second plurality of external radio signals broadcasted by at least one radio source selected from the group consisting of: {GPS; GLONASS; combined GPS/GLONASS; GALILEO; Global Navigational Satellite System (GNSS); and a pseudolite transmitter};

a second radio (pseudolite) positioning system receiver configured to

receive at least one said internal radio signal broadcasted by said stationary self-positioning radio (pseudolite) transceiver by using said second wireless link;

and

a laser detector configured to detect at least one said laser beam generated by said stationary laser transmitter positioned in said location with known coordinates;

wherein said integrated radio (pseudolite) receiver/laser detector (RR_LD) is configured to determine its 3-D position coordinates at a first level of accuracy based on said second plurality of received external radio signals, and based on said received at least one internal radio signal;

wherein said integrated radio (pseudolite) receiver/laser detector (RR_LD) is configured to determine its elevation at a second level of accuracy based on said at least one detected laser beam;

and wherein a set of measurements determined at said second level of accuracy is more accurate than said set of measurements determined at said first level of accuracy.

10. (Original) The system of claim 8, wherein said at least one mobile integrated radio receiver/laser detector (RR_LD) further comprises:

a first radio (pseudolite) receiver configured to receive a first set of measurement data from said second plurality of external radio signals;

a second radio (pseudolite) receiver configured to receive a second set of measurement data from at least one said internal radio signal broadcasted by said stationary self-positioning radio (pseudolite) transceiver by using said second wireless link;

a laser detector configured to detect at least one said laser beam generated by said stationary laser transmitter positioned in said location with known coordinates in order to receive a third set of measurement data;

and

a weighting processor;

wherein said weighting processor is configured to assign different weights to different sets of measurement data based on a measurement algorithm.

11. (Currently Amended) The system of claim 10, wherein said measurement algorithm is optimized to take into account at least one measurement site parameter at the time of measurement; and wherein each said measurement site parameter is selected from the group consisting of: {topology of said site; weather conditions at said site; and visibility of at least one said laser beam at said site}.

12. (Currently Amended) A radio and light based 3-D positioning system comprising:

a stationary self-positioning radio (pseudolite) transceiver configured to receive a first plurality of external radio signals, configured to determine its position coordinates based on said first plurality of received external radio signals, configured to broadcast at least one internal radio signal;

and

a stationary laser transmitter positioned in a location with known coordinates; said stationary laser transmitter configured to broadcast at least one laser beam;

wherein at least one mobile integrated radio receiver (pseudolite)/laser

detector (RR_LD) is configured to receive a second plurality of external radio signals, is configured to receive at least one said internal radio signal broadcasted by said stationary self-positioning radio transceiver; is configured to detect at least one said laser beam generated by said stationary laser transmitter; and is configured to determine its 3-D position coordinates based on a set of data selected from the group consisting of: {said second plurality of received external radio signals; said at least one received internal radio signal; and said at least one detected laser beam}.

13. (Currently Amended) A method of determining the position coordinates of a mobile user comprising:

(A) providing a radio and light based 3-D positioning system comprising a stationary self-positioning radio (pseudolite) transceiver, a stationary laser transmitter positioned in a location with known coordinates, and said mobile user comprising a mobile integrated radio receiver/laser detector (RR_LD);

(B) receiving a first plurality of external radio signals by using said stationary self-positioning radio (pseudolite) transceiver;

(C) determining position coordinates of said stationary self- positioning radio (pseudolite) transceiver based on said first plurality of received external radio signals;

(D) broadcasting at least one internal radio signal by said stationary self-positioning radio (pseudolite) transceiver;

(E) generating at least one laser beam by using said stationary laser transmitter positioned in said location with known coordinates;

(F) receiving a second plurality of external radio signals, receiving at least

one said internal radio signal broadcasted by said stationary self- positioning radio (pseudolite) transceiver; and detecting said laser beam generated by said stationary laser transmitter positioned in said location with known coordinates;

and

(G) determining the 3-D position coordinates of said mobile integrated radio receiver/laser detector (RR_LD) based on a set of data selected from the group consisting of: {said second plurality of received external radio signals; said at least one received internal radio signal; and said at least one detected laser beam}.

14. (Currently Amended) The method of claim 13, wherein said step (B) further comprises:

(B1) receiving said second plurality of external radio signals broadcasted by at least one radio source selected from the group consisting of: {GPS; GLONASS; combined GPS/GLONASS; GALILEO; Global Navigational Satellite System (GNSS); and a pseudolite transmitter}.

15. (Original) The method of claim 13, wherein said step (E) further comprises:

(E1) generating a reference laser beam providing a high accuracy vertical coordinate by using a plane laser transmitter.

16. (Original) The method of claim 13, wherein said step (E) further comprises:

(E2) generating at least one rotating fan-shaped laser beam by using a fan laser transmitter.

17. (Currently Amended) The method of claim 13, wherein said step (F) further comprises:

(F1) receiving said second plurality of external radio signals broadcasted by at least one radio source selected from the group consisting of: {GPS; GLONASS; combined GPS/GLONASS; GALILEO; Global Navigational Satellite System (GNSS); and a pseudolite transmitter}.

18. (Original) The method of claim 13, wherein said step (F) further comprises:

(F2) detecting at least one said laser beam generated by said stationary laser transmitter positioned in said location with known coordinates.

19. (Original) The method of claim 13, wherein said step (G) further comprises:

(G1) determining the 3-D position coordinates of said mobile integrated radio (pseudolite) receiver/laser detector (RR_LD) at said first level of accuracy based on said second plurality of received external radio signals; and based on said at least one internal radio signal broadcasted by said stationary self-positioning radio (pseudolite) transceiver;

and

(G2) determining said elevation coordinate of said mobile integrated radio receiver/laser detector (RR_LD) at said second level of accuracy based on said at least one detected laser beam; wherein a set of measurements determined at said second level of accuracy is more accurate than said set of measurements determined at said first level of accuracy.

20. (Currently Amended) The method of claim 13, wherein said step (G) further

comprises:

(G3) assigning different weights to different sets of measurement data based on a measurement algorithm by using a weighting processor; wherein said measurement algorithm is optimized to take into account at least one measurement site parameter at the time of measurement; and wherein each said measurement site parameter is selected from the group consisting of: {topology of said site; weather conditions at said site; and visibility of at least one said laser beam at said site}.

21. (Currently Amended) A method of determining the position coordinates of a mobile user comprising:

(A) providing a radio and light based 3-D positioning system comprising a stationary self-positioning radio (pseudolite) transceiver, and a stationary laser transmitter positioned in a location with known coordinates;

(B) receiving a first plurality of external radio signals by using said stationary self-positioning radio (pseudolite) transceiver;

(C) determining position coordinates of said stationary self- positioning radio (pseudolite) transceiver based on said first plurality of received external radio signals;

(D) broadcasting at least one internal radio signal by said stationary self-positioning radio (pseudolite) transceiver;

and

(E) generating at least one laser beam by using said stationary laser transmitter positioned in said location with known coordinates;

wherein said mobile user comprising a mobile integrated radio

receiver/laser detector (RR_LD) is configured to receive a second plurality of external radio signals, is configured to receive at least one said internal radio signal broadcasted by said stationary self- positioning radio (pseudolite) transceiver, is configured to detect said laser beam generated by said stationary laser transmitter positioned in said location with known coordinates, and is configured to determine its 3-D position coordinates based on a set of data selected from the group consisting of: {said second plurality of received external radio signals; said at least one received internal radio signal; and said at least one detected laser beam}.